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A convenient and practical synthesis of B_5H_9 , the pentaborane starting material for many polyborane cage compounds, has been devised by chemistry and biochemistry professor [Narayan S. Hosmane](#) and his colleagues at Northern Illinois University [*J. Am. Chem. Soc.*, **124**, 7292 (2002)]. This pentaborane was for many years available to researchers for free from Air Force stockpiles that have now been destroyed.

The synthesis converts boric acid (H_3BO_3) to the sodium salt of the $[B_3H_8]^-$ ion, which then reacts with $NiCl_2$ in benzene or heavy mineral oil to produce the pentaborane. Because the product is a reactive liquid that can explode when exposed to air, synthesis in mineral oil provides a safe way to handle and store the material. The same $NiCl_2$ chemistry can also be used to couple two $[B_9H_{14}]^-$ ions to form *anti*- $B_{18}H_{22}$, the researchers demonstrate. These syntheses can be carried out with ^{10}B -enriched boric acid, making them potentially useful for preparing boron cage compounds currently being investigated in an experimental cancer treatment known as [boron neutron capture therapy](#).

